HAER NO. MT-95-M

Rainbow Hydroelectric Facility,
Plank Bridge
On Swimming Pool Road, about 575 feet west of Power house
Great Falls Vicinity
Cascade County
Montana

PHOTOGRAPHS
WRITTEN HISTORICAL AND DESCRIPTIVE DATA

**HISTORIC AMERICAN ENGINEERING RECORD**
**Intermountain Support Office - Denver**
**National Park Service**
**P.O. Box 25287**
**Denver, Colorado 80225-0287**

**HISTORIC AMERICAN ENGINEERING RECORD**

**RAINBOW HYDROELECTRIC FACILITY,**
**PLANK BRIDGE**

I. INTRODUCTION HAER No. MT-95-M

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| Location: | The plank bridge is on the swimming pool road at the Rainbow Hydroelectric Facility. It lies about 575 feet west of the Rainbow Powerhouse's southwest corner. |
| Quad: | Great Falls Northeast, MT (1991) |
| UTM: | Zone 12; 485121 Easting; 5264975 Northing (NAD 83) |
| Date of Construction: | ca. 1925 |
| Present Owner: | Pennsylvania Power and Light-Montana (PPL-Montana)<br>45 Basin Creek Rd., Butte, Montana |
| Present Use: | Bridge |
| Significance: | The Rainbow Hydroelectric Facility is one of several discontinuous units comprising the Great Falls Hydroelectric Facilities Historic District. The plank bridge contributes to the significance of the district for its association with the late nineteenth/early twentieth century practice by utility companies to construct and maintain residential camps for operators and their families at isolated hydroelectric plants. Additionally, it serves as an example of a small plank bridge of the early to mid-twentieth century. |
| Historian: | Renewable Technologies, Inc.<br>8 W. Park, Suite 313<br>Butte, Montana 59701<br>September 2009 |

II. HISTORICAL AND DESCRIPTIVE DATA

The plank bridge is on the dirt "swimming pool" road, a dirt road which skirts a natural basin or swale just above (northwest of) the northeast end of a bench where houses in the Rainbow Operators' Camp once stood (Figure 1). The mouth or southeast side of the basin is closed by a fill section for a pair of buried high-pressure pipelines, the flowline for the water delivery system serving the plant's original six turbine-generator units. The enclosed basin formerly was the site of a 20' by 54' concrete swimming pool.[1]

The swimming pool road begins at the south corner of the basin where it branches off a two-track concrete tread road that runs on top of the flowline. From there, it extends along the southwest and northwest sides of the basin, and then continues northeast up the fairly steep terrace slope toward the pressure chamber. The road splits before reaching the pressure chamber, with a branch veering north toward the Ryan Dam Road.

The road presumably was constructed at the same time that employees at Rainbow completed the swimming pool, reportedly around 1925.[2] The plank bridge as well as a stone culvert (HAER No. MT-95-L) on the road with little doubt are original components, erected to handle the seasonal flow of two natural gullies that drained into the basin. Rainbow employees established the plank bridge at the northernmost of the two gullies, just beyond (northeast of) the curve in the road. In addition to the plank bridge, the stone culvert survives at present (May 2009) and the road remains intact and in use. The swimming pool was recorded to HAER standards (HAER No. MT-95-E) just prior to its removal in the mid-1990s.[3]

The section of road at the plank bridge is aligned on a southwest-northeast axis. The bridge measures 16'2" wide, or about 8' wider than the road, is 8'6" long and stands about 1' only above the bottom of the gully. The deck is comprised of eight, 3x12" planks. A pair of plank driving treads run down the center of the deck where they are spaced 2"9' apart.

The bridge rests on small stone abutments, only about 1' wide by 1'6" tall each. The abutment stones are large rough-cut sandstone blocks, without mortar in most places. Some abutment stones on the upper (northwest) side of the bridge have wider interstices chinked with narrow rock slabs and cement mortar. The abutment at the bridge's upper southwest corner is cut short by a large old tree standing in the gully. Other abutment walls are longer, curving around the sides of their respective banks. The southeast wall extends about 11' beyond the bridge.

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[1] Montana Power Company, *Insurance Map of Rainbow Montana*, April 1921, revised to 16 December 1964, drawing on file, PPL-Montana, Billings.

[2] William O'Keefe, telephone interviews with Fredric L. Quivik, 20 November 1987, 17 February 1988. At the time of these interviews O'Keefe was the assistant superintendent of operations at the Rainbow Hydroelectric Facility, while Quivik worked as an historian for Renewable Technologies, Inc.

[3] Lon Johnson and Mary McCormick, *Historic American Engineering Record, Rainbow Hydroelectric Facility, Swimming Pool, HAER No. MT-95-E* (Butte: Renewable Technologies, Inc., 1995).

| No. | Name / Function | Construction | Status |
|---|---|---|---|
| 3 | Flowline & Pressure Chamber | 1909-10 | Contributing |
| 7 | Powerhouse | 1909-10; 1917 | Contributing |
| 20 | Powder Magazine | ca. 1909 | Contributing |
| 21 | Clubhouse | 1925 | Removed |
| 22 | Residence | 1911 | Removed |
| 23 | Residence | 1913 | Removed |
| 24 | Garage | 1933 | Removed |
| 30 | Swimming Pool | ca. 1925 | Removed |
| 35 | Railroad Grade | 1908 | Contributing |
| 36 | Terraced Gardens | ca. 1920s / 1930s | Contributing |
| 39 | Stone Culvert | ca. 1925 | Contributing |
| 40 | Plank Bridge | ca. 1925 | Contributing |

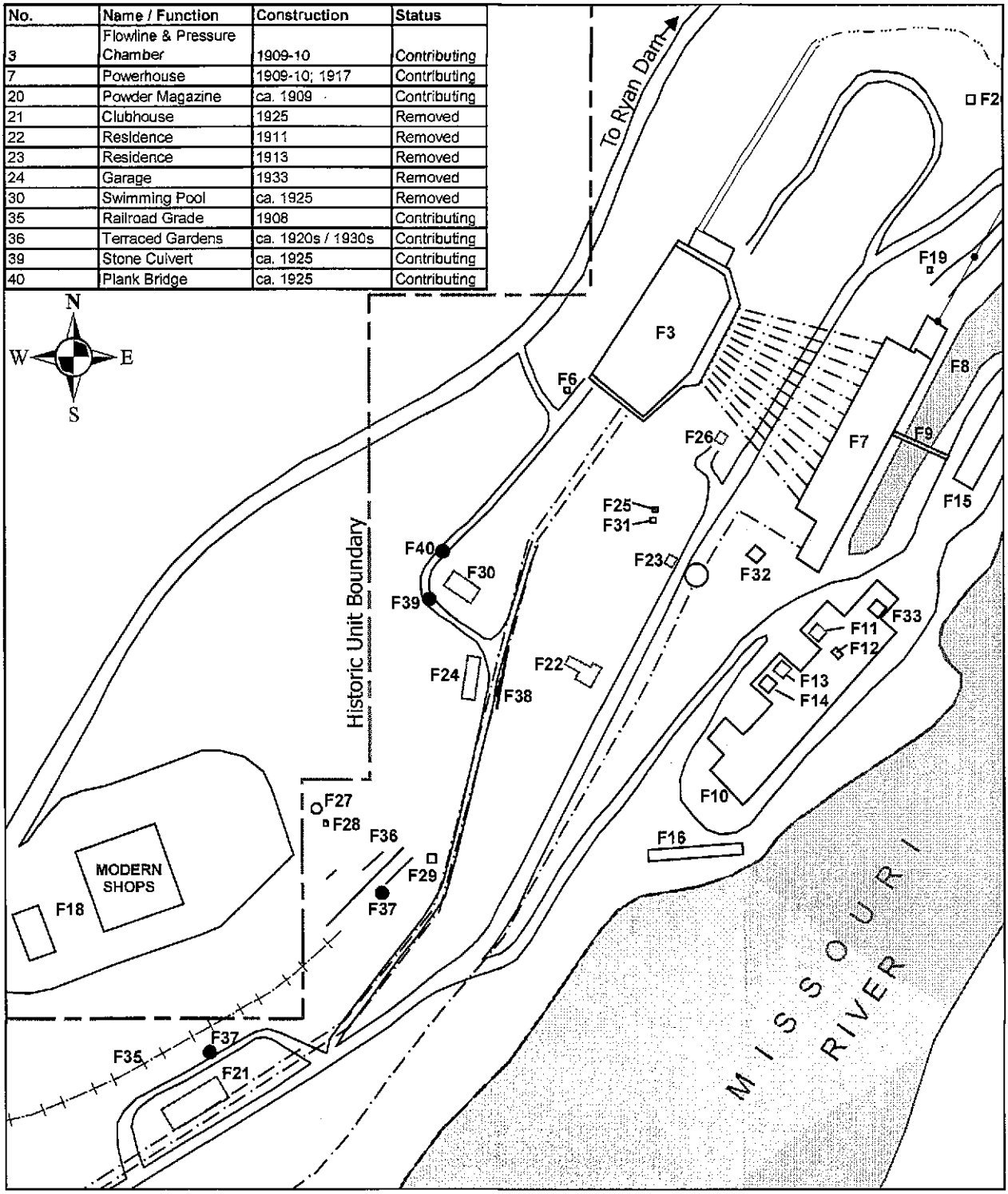


Figure 1. Map of Rainbow Hydroelectric Facility

III. FUTURE OF PROPERTY

PPL-Montana plans to remove the plank bridge at Rainbow. In order to address this impact, the company has sponsored recording the structure to HAER standards.

IV. BIBLIOGRAPHY

Johnson, Lon and Mary McCormick. *Historic American Engineering Record, Rainbow Hydroelectric Facility, Swimming Pool, HAER No. MT-95-E.* Butte: Renewable Technologies, Inc., 1995.

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O'Keefe, William. Telephone interviews with Fredric L. Quivik. 20 November 1987. 17 February 1988.